

CLAIMS

1. A cell comprising at least part of the cytoplasm derived from an embryonal stem cell or embryonal germ cell combined with a nucleus of a somatic cell.

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2. A cell according to Claim 1 wherein said cell is a cybrid and is characterised by the possession of at least one pluripotential characteristic.

3. A cell according to Claim 2 characterised in that said pluripotential characteristic includes the ability to differentiate into at least one selected tissue type.

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sub A' 4. A cell according to Claims 2 or 3 characterised in that said pluripotential characteristic includes the ability of said cell to proliferate in culture in an undifferentiated state.

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5. A cell according to Claim 4 characterised in that said cell has the capacity to proliferate in continuous culture in an undifferentiated state for at least six months and ideally 12 months.

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sub B' 6. A cell according to any of Claims 2-5 characterised in that said pluripotential characteristic includes the expression of at least one selected marker of pluripotential cells.

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7. A cell according to Claim 6 characterised in that said selected marker is expression of Oct4.

sub A'' 8. A cell according to Claim 6 characterised in that said selected marker is a cell surface marker.

9. A cell according to Claim 8 characterised in that said cell surface marker is selected from the group including: SSEA-1 (-); and/or SSEA-3 (+); and/or SSEA-4 (+); and/or TRA-1-60 (+); and/or TRA-1-81 (+); and/or alkaline phosphatase (+).

5 10. A cell according to any of Claims 2-9 characterised in that said pluripotential characteristic includes the presence of telomerase activity in said pluripotential cell.

10 11. A cell according to any of Claims 2-10 characterised in that said pluripotential characteristic includes the presence of a chromosomal methylation pattern characteristic of pluripotential cells.

sub B² 12. A cell according to any of Claims 2-11 characterised in that said pluripotential characteristic includes the ability to induce tumours when introduced into an animal.

15 sub C³ 13. A cell-line comprising cells according to any of Claims 2-12.

14. A cell-line according to Claim 13 characterised in that said cell-line is of human origin.

20 15. A method for preparing a cytoplasm, or part thereof, for use in the production of the cell according to any of Claims 2-12 or the cell-line according to Claims 13 or 14 comprising:

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- (i) providing at least one embryonal stem/embryonal germ cell;
 - (ii) separating at least part of the cytoplasm from the nucleus of said embryonal stem/embryonal germ cell;
 - (iii) isolating said cytoplasmic part; and, optionally
 - (iv) storing said isolated cytoplasmic part prior to use.
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16. A method according to Claim 15 characterised in that said cytoplasmic part is a cytoplasm.

suba⁴ 17. A method for preparing a cell according to any of Claims 2-12 or a cell-line
5 according to Claims 13 or 14 comprising;

- (i) combining at least one embryonal stem/embryonal germ cell with at least one somatic cell;
- (ii) removing from said combined cell, the embryonal stem/embryonal germ cell nucleus;
- (iii) culturing said cell under conditions conducive to proliferation and expansion of said cell; and, optionally
- (iv) storing said cell culture under suitable storage conditions.

18. A method for preparing a cell according to any of Claims 2-12 or a cell-line according to Claims 13 or 14 comprising;

- (i) providing at least part of the cytoplasm of an embryonal stem/embryonal germ cell;
- (ii) combining said cytoplasmic part with at least one somatic cell;
- (iii) growing said combined cell in culture; and, optionally
- (iv) storing said combined cell under suitable storage conditions.

19. A method according to Claim 18 characterised in that said cytoplasmic part is provided as a cytoplasm.

20. A method according to Claim 19 characterised in that said cytoplasm is combined with said somatic cell via cytoplasm/somatic cell fusion.

sub a⁵ 21. A method according to any of Claims 18-20 characterised in that said embryonal stem/embryonal germ cell and somatic cell are of human origin.

22. A cell culture comprising at least one cell according to any of Claims ~~2-12~~.

23. A method for inducing differentiation of at least one cell according to any of

5 Claims 2-12 comprising;

(i) providing a cell according to any of Claims 2-12;

(ii) culturing said cell under conditions conducive to the differentiation of said cell into at least one tissue; and, optionally

10 (iii) storing of said differentiated tissue prior to use under suitable storage conditions.

sub a⁶ 24. A method according to Claim 23 characterised in that said method provides a
15 tissue type selected from at least one of the following: neural, smooth muscle, striated muscle, cardiac muscle, bone, cartilage, liver, kidney, respiratory epithelium haematopoietic cells, spleen, skin, stomach, intestine.

25. At least one tissue type or organ comprising at least one cell according to any of Claims 2-12.

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26. A therapeutic composition comprising at least one cell according to any of Claims 2-12 including a suitable excipient, diluant or carrier.

27. A therapeutic composition according to Claim 26 characterised in that said
25 therapeutic composition is provided for use in tissue transplantation.

28. A method to treat conditions or diseases requiring transplantation of tissue comprising:

30 (i) providing at least one tissue type or organ according to Claim 26 or 27;

- (ii) surgically introducing said tissue or organ into a patient to be treated;
- (iii) treating said patient under conditions which are conducive to the acceptance of said transplanted tissue by said patient.

- 5 29. A kit comprising; at least one cell according to any of Claims 2-12; instructions with respect to the maintenance of said cell in culture; and, optionally, factors required to induce differentiation of said cell to at least one desired tissue type or organ.